AMENDMENTS TO THE CLAIMS

1. (Original) A method of determining the presence or absence of a target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, an amount of parent bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample, said amount of parent bacteriophage being less than the threshold amount of bacteriophage capable of being detected in said bacteriophage exposed sample;

(b) providing conditions to said bacteriophage exposed sample sufficient to allow said bacteriophage to infect said target microorganism and to multiply in said target microorganism to create a detectable amount of either said bacteriophage or a biological substance associated with said bacteriophage in said bacteriophage exposed sample; and

(c) assaying said bacteriophage exposed sample to detect the presence or absence of said bacteriophage or said biological substance associated with said bacteriophage to determine the presence or absence of said target microorganism.

2. (Original) A method as in claim 1 wherein said microorganism is a bacterium and said assaying comprises detecting said bacteriophage or a biological substance associated with said bacteriophage as an indication of the presence of said target bacterium in said sample.

3. (Original) A method as in claim 2 wherein said providing comprises providing conditions sufficient to cause said bacteriophage to multiply sufficiently to burst said target bacterium.

4. (Original) A method as in claim 1 wherein said assaying comprises applying said bacteriophage exposed sample to a lateral flow strip.

5. (Original) A method as in claim 1 wherein said assaying comprises complexing said bacteriophage or a biological substance associated with said bacteriophage with a colored bead.

6. (Original) A method as in claim 1 wherein said assaying comprises permitting an antibody to attach to said bacteriophage or a biological substance associated with said bacteriophage.

7. (Original) A method as in claim 1 wherein said sample is a fluid and said combining comprises pouring said sample into a container containing said parent bacteriophage.

8. (Withdrawn) A method as in claim 1 wherein said assaying comprises applying said bacteriophage exposed sample to a SILAS surface.

9. (Withdrawn) A method as in claim 8 wherein said assaying comprises contacting an enzyme to said SILAS surface after said applying.

10. (Withdrawn) A method as in claim 1 wherein said assaying comprises utilizing a mass spectrometer.

11. (Withdrawn) A method as in claim 10 wherein said utilizing comprises utilizing a MALDI mass spectrometer.

12. (Withdrawn) A method as in claim 10 wherein said utilizing comprises preparing a spectrometer sample using magnetic beads.

13. (Original) A method as in claim 1 wherein said assaying comprises exposing said sample to a laser beam.

14. (Original) A method as in claim 1 wherein said providing comprises lysing said microorganism prior to said assaying.

15. (Original) A method as in claim 14 wherein said lysing comprises permitting said bacteriophage to burst said microorganism.

16. (Withdrawn) A method as in claim 14 wherein said lysing comprises adding a microbial lysozyme to said bacteriophage exposed sample.

17. (Withdrawn) A method as in claim 14 where said lysing comprises a method selected from the group consisting of: adding chloroform to said bacteriophage exposed sample; treating said bacteriophage exposed sample with acid; and physically processing said bacteriophage exposed sample.

18. (Original) A method as in claim 14 wherein said providing further comprises dissociating said bacteriophage.

19. (Original) A method as in claim 18 wherein said dissociating comprises adding a dissociating agent to said bacteriophage exposed sample.

20. (Original) A method as in claim 19 wherein said adding comprises adding a substance selected from the group consisting of: acid, urea, denaturing agents, and enzymes.

21. (Original) A method as in claim 1 wherein said providing comprises dissociating said bacteriophage.

22. (Original) A method as in claim 21 wherein said dissociating comprises adding a dissociating agent to said bacteriophage exposed sample.

23. (Original) A method as in claim 22 wherein said adding a dissociating agent comprises adding a substance selected from the group consisting of: acid, urea, denaturing agents, and enzymes.

Claims 24 – 31 (Canceled)

32. (Original) A method as in claim 1 wherein said bacteriophage is genetically modified.

33. (Withdrawn) A method as in claim 32 wherein said bacteriophage is genetically modified to enhance a desirable property of the infection process.

34. (Original) A method as in claim 32 wherein said bacteriophage is genetically modified to over-express a detectable biomarker.

35. (Withdrawn) A method as in claim 32 wherein said bacteriophage is genetically modified to express an enzyme.

36. (Withdrawn) A method as in claim 32 wherein said bacteriophage is genetically modified to express a target on the capsid protein.

37. (Original) A method of determining the presence or absence of a target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, an amount of parent bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample;

(b) providing conditions to said bacteriophage exposed sample sufficient to allow said bacteriophage to infect said target microorganism and to multiply in said target microorganism to create a detectable amount of either said bacteriophage or a biological substance associated with said bacteriophage in said bacteriophage exposed sample; and

(c) applying said bacteriophage exposed sample to a lateral flow strip to determine the presence or absence of said target microorganism.

38. (Original) A method as in claim 37 wherein said microorganism is a bacterium and said assaying comprises detecting said bacteriophage or a biological substance associated with said bacteriophage as an indication of the presence of said target bacterium in said sample.

39. (Original) A method as in claim 38 wherein said providing comprises providing conditions sufficient to cause said bacteriophage to multiply sufficiently to burst said target bacterium.

40. (Original) A method of determining the presence or absence of a target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, an amount of parent bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample;

(b) providing conditions to said bacteriophage exposed sample sufficient to allow said bacteriophage to infect said target microorganism and to multiply in said target microorganism to create a detectable amount of either said bacteriophage or a biological substance associated with said bacteriophage in said bacteriophage exposed sample; and

(c) applying said bacteriophage exposed sample to a SILAS surface to determine the presence or absence of said target microorganism.

41. (Original) A method as in claim 40 wherein said microorganism is a bacterium and said assaying comprises detecting said bacteriophage or a biological substance associated with said bacteriophage as an indication of the presence of said target bacterium in said sample.

42. (Original) A method as in claim 41 wherein said providing comprises providing conditions sufficient to cause said bacteriophage to multiply sufficiently to burst said target bacterium.

43. (Original) A method of determining the presence or absence of a target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, parent bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample;

(b) providing conditions to said bacteriophage exposed sample sufficient to allow said bacteriophage to infect said target microorganism and to multiply in said target microorganism to create a detectable amount of either said bacteriophage or a biological substance associated with said bacteriophage in said bacteriophage exposed sample;

(c) obtaining a mass spectrum of said sample utilizing a matrix-assisted laser desorption/ionization with time-of-flight mass spectrometry (MALDI-TOF-MS);

(d) utilizing said mass spectrum to determine the presence or absence of either said bacteriophage or a biological substance associated with said bacteriophage as an indication of the presence or absence of said target microorganism.

44. (Original) A method as in claim 43 wherein said obtaining comprises concentrating said bacteriophage or said a biological substance associated with said bacteriophage exposed sample.

45. (Original) A method as in claim 44 wherein said concentrating comprises forming a complex of said bacteriophage or said a biological substance associated with said bacteriophage and magnetic beads and segregating said complex with a magnet.

46. (Original) A method of determining the presence or absence of a target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample;

(b) without destroying, removing, neutralizing, or inactivating extracellular bacteriophage in said bacteriophage exposed sample, providing conditions to said bacteriophage exposed sample sufficient to allow said bacteriophage to infect said target microorganism and to multiply in said target to create a detectable amount of either said bacteriophage or a biological substance associated with said bacteriophage in said bacteriophage exposed sample; and

(c) assaying said bacteriophage exposed sample to detect the presence or absence of said bacteriophage or said biological substance associated with said bacteriophage to determine the presence or absence of said target microorganism.

47. (Original) A method as in claim 46 wherein said microorganism is a bacterium and said assaying comprises detecting said bacteriophage or a biological substance associated with said bacteriophage as an indication of the presence of said target bacterium in said sample.

48. (Original) A method as in claim 47 wherein said providing comprises providing conditions sufficient to cause said bacteriophage to multiply sufficiently to burst said target bacterium.

49. (Original) A method as in claim 46 wherein said assaying comprises providing a reference indicating an assay result if no target microorganism are present in said sample and comparing a corresponding result from said bacteriophage exposed sample to said reference result.

50. (Original) A method as in claim 46 wherein said providing comprises lysing said microorganism prior to said assaying.

51. (Original) A method as in claim 46 wherein said providing comprises dissociating said bacteriophage.

Claim 52 (Canceled)

53. (Original) A method of detecting the presence or absence of a target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample;

(b) providing conditions to said bacteriophage exposed sample sufficient to allow said bacteriophage to infect said target microorganism and to multiply in said target to create a detectable amount of a capsid protein associated with said bacteriophage in said bacteriophage exposed sample; and

(c) assaying said bacteriophage exposed sample to determine the presence or absence of said capsid protein associated with said bacteriophage as an indication of the presence or absence of said target microorganism.

54. (Original) A method as in claim 53 wherein said microorganism is a bacterium and said assaying comprises detecting said capsid protein as an indication of the presence of said target bacterium in said sample.

55. (Original) A method as in claim 53 wherein said providing comprises actively lysing said microorganism prior to said assaying.

56. (Original) A method as in claim 55 wherein said actively lysing comprises a method selected from the group consisting of: adding chloroform to said bacteriophage exposed sample; treating said bacteriophage exposed sample with acid; and physically processing said bacteriophage exposed sample.

57. (Original) A method as in claim 53 wherein said providing further comprises dissociating said bacteriophage.

58. (Original) A method as in claim 57 wherein said dissociating comprises adding a dissociating agent to said bacteriophage exposed sample.

Claims 59 – 61 (Canceled)

62. (Original) A method as in claim 53 wherein said assaying comprises providing a reference indicating an assay result if said target microorganism are not present in said sample and comparing a corresponding result from said bacteriophage exposed sample to said reference result.

63. (Previously presented) A method of detecting the presence or absence of target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, parent bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample;

(b) providing conditions to said bacteriophage exposed sample sufficient to: allow said bacteriophage to infect said target microorganism and multiply in said target microorganism to create progeny bacteriophage; and produce a dissociated bacteriophage substance accessible to an assay; and

(c) assaying said bacteriophage exposed sample to determine the presence or absence of said bacteriophage substance as an indication of the presence or absence of said target microorganism in said sample.

64. (Original) A method as in claim 63 wherein said microorganism is a bacterium and said assaying comprises detecting said bacteriophage substance as an indication of the presence of said target bacterium in said sample.

65. (Original) A method as in claim 63 wherein said bacteriophage substance is a capsid protein.

66. (Original) A method as in claim 63 wherein said providing comprises lysing said microorganism to release said bacteriophage.

67. (Original) A method as in claim 66 wherein said lysing comprises adding a microbial lysozyme to said bacteriophage exposed sample.

68. (Original) A method as in claim 66 where said lysing comprises a method selected from the group consisting of: adding chloroform to said bacteriophage exposed sample; treating said bacteriophage exposed sample with acid; and physically processing said bacteriophage exposed sample.

69. (Original) A method as in claim 63 wherein said dissociating comprises adding a dissociating agent to said bacteriophage exposed sample.

70. (Original) A method as in claim 69 wherein said adding comprises adding a substance selected from the group consisting of: acid, urea, denaturing agents, and enzymes.

Claims 71 and 72 (Canceled)

73. (Original) A method as in claim 63 wherein said assaying comprises applying said bacteriophage exposed sample to a lateral flow strip.

Claims 74 – 83 (Canceled)

84. (Previously presented) A method of determining the presence or absence of a target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, a parent bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample;

(b) providing conditions to said bacteriophage exposed sample sufficient to allow said bacteriophage to infect said target microorganism and to multiply in said target microorganism to create a detectable amount of either said bacteriophage or a biological substance associated with said bacteriophage in said bacteriophage exposed sample;

(c) applying said bacteriophage exposed sample to a substrate at least a portion of which changes color if either said bacteriophage or a biological substance associated with said bacteriophage in said bacteriophage exposed sample is present; and

(d) determining the presence or absence of said color change as an indication of the presence of absence of said target microorganism.

85. (Original) A method as in claim 84 wherein said applying comprises applying said bacteriophage exposed sample to a lateral flow strip.

86. (Original) A method as in claim 84 wherein said applying comprises applying said bacteriophage exposed sample to a SILAS surface.

Claims 87 – 94 (Canceled)

95. (Original) A method of detecting the presence or absence of target microorganism in a sample to be tested, said method comprising:

(a) combining with said sample, patent bacteriophage capable of infecting said target microorganism to create a bacteriophage exposed sample;

(b) providing conditions to said bacteriophage exposed sample sufficient to: allow said bacteriophage to infect said target microorganism and multiply in said target microorganism to create a detectable amount of either said bacteriophage or a biological substance associated with said bacteriophage in said bacteriophage exposed sample;

(c) actively lysing said microorganism; and

(d) assaying said bacteriophage exposed sample to detect the presence or absence of said bacteriophage or said biological substance associated with said bacteriophage to determine the presence or absence of said target microorganism.

96. (Original) A method as in claim 1 wherein said target microorganism is a bacterium and said assaying comprises detecting said bacteriophage or a biological substance associated with said bacteriophage as an indication of the presence of said target bacterium in said sample.

97. (Original) A method as in claim 95 wherein said biological substance is a capsid protein.

98. (Original) A method as in claim 95 wherein said actively lysing comprises adding a microbial lysozyme to said bacteriophage exposed sample.

99. (Original) A method as in claim 95 where said actively lysing comprises a method selected from the group consisting of: adding chloroform to said bacteriophage exposed sample; treating said bacteriophage exposed sample with acid; and physically processing said bacteriophage exposed sample.

Claims 100 – 114 (Canceled)